Features

- RoHS compliant*
- Low capacitance - 15 pF
- ESD protection per IEC 61000-4-2
- Surge protection

Applications

- Personal Digital Assistants (PDAs)
- Mobile phones & accessories
- Memory card protection
- SIM card port protection
- Portable electronics

CD0603/CD1005-T Surface Mount TVS Diode Series

General Information

The markets for portable communications, computing and video equipment are challenging the semiconductor industry to develop increasingly smaller electronic components. Bourns offers TVS Diodes for voltage reference applications, in compact chip package 0603 or 1005 size formats, which offer PCB real estate savings and are considerably smaller than most competitive parts. The TVS Diodes have a working peak voltage range between 5.0 V and 24 V.

The device is designed to meet IEC 61000-4-5 (Surge) protection requirements.

Bourns® Chip Diodes conform to JEDEC standards, are easy to handle on standard pick and place equipment and their flat configuration minimizes roll away.

Thermal Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	CD0603-T / CD1005-T Series	Unit
Package Power	P_{PK}	100	mW
Storage Temperature	T_{STG}	-40 to +125	ºC
Operating Temperature	T_{OPR}	-40 to +125	ºC

Electrical Characteristics (@ T_A = 25 °C Unless Otherwise Noted)

Parameter	Symbol	CD0603-T / CD1005-T Series			Unit
		05C	12C	24C	
Minimum Breakdown Voltage @ 1 mA	V_{BR}	5.1	13	25	V
Typical Breakdown Voltage @ 1 mA	V_{BR}	7	17	28	V
Peak Pulse Current (t_p = 8/20 μs)	I_{PPM}	5.1	1	1	A
Maximum Working Peak Voltage	W_{WM}	5	12	24	V
Maximum Leakage Current @ V_{WM}	I_D	2.0			μA
Maximum Clamping Voltage @ Max. I_{PP}	V_C	15	25	47	V
Maximum Junction Capacitance @ 0 V 1 MHz	C_D	20			pF
Typical Junction Capacitance @ 0 V 1 MHz	C_D	15	12	10	pF
ESD Protection per IEC 61000-4-2 Contact Discharge Air Discharge	 ESD ESD	 8 15			 kV kV

How to Order

CD 0603 - T 05 C

- Common Code: Chip Diode
- Package: • 0603 • 1005
- Diode Series: T = TVS Diode
- Working Peak Voltage: 05 = 5 Volts; 12 = 12 Volts; 24 = 24 Volts
- Directionality: C = Bidirectional

BOURNS®

Asia-Pacific:
Tel: +886-2 2562-4117
Fax: +886-2 2562-4116

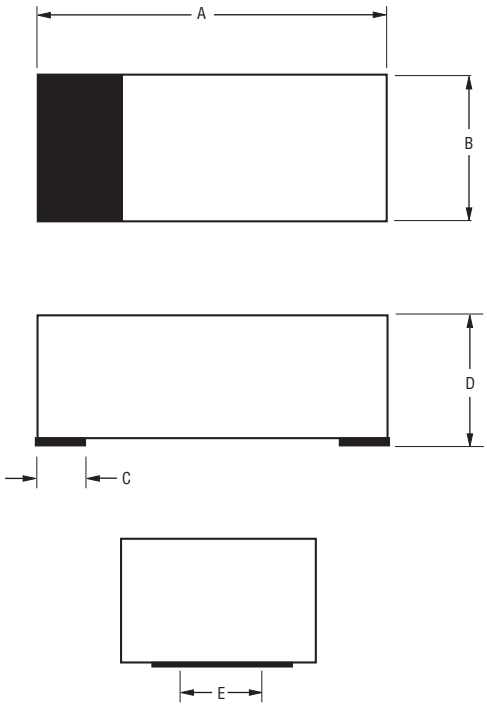
Europe:
Tel: +41-41 768 5555
Fax: +41-41 768 5510

The Americas:
Tel: +1-951 781-5500
Fax: +1-951 781-5700

www.bourns.com

*RoHS Directive 2002/95/EC Jan. 27, 2003 including annex and RoHS Recast 2011/65/EU June 8, 2011.

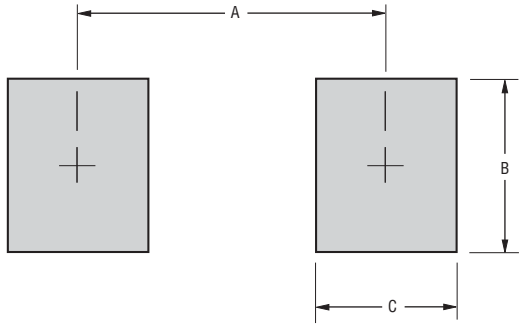
Product Dimensions



Dimension	0603	1005
A	1.60 - 1.80 (0.063 - 0.071)	2.40 - 2.60 (0.095 - 0.102)
B	0.80 - 100 (0.031 - 0.039)	1.10 - 1.30 (0.043 - 0.051)
C	0.45 (0.018) Typ.	0.50 (0.020) Typ.
D	0.70 - 0.85 (0.027 - 0.033)	0.70 - 0.90 (0.027 - 0.035)
E	0.70 (0.028) Typ.	1.00 (0.039) Typ.

DIMENSIONS: MM (INCHES)

Recommended Pad Layout



Dimension	0603	1005
A (Max.)	1.25 (0.049)	2.00 (0.079)
B (Min.)	1.00 (0.039)	1.3 (0.051)
C (Min.)	0.6 (0.024)	0.7 (0.028)

DIMENSIONS: MM (INCHES)

Physical Specifications

Case ..... 0603(1608) / 1005(2512) Molded plastic
Terminals ..... Solder plated, solderable per MIL-STD-750, Method 2026
Polarity ..... Indicated by cathode band
Mounting Position ..... Any

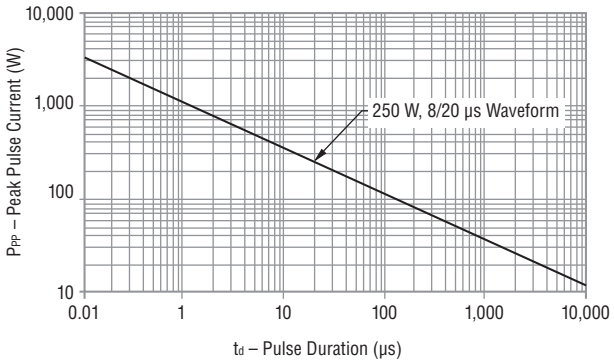
Typical Part Marking

CD0603-T05C E05
CD0603-T12C E12
CD0603-T24C E24

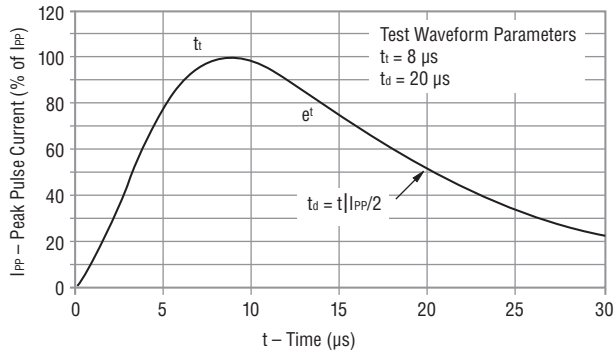
CD1005-T05C E05
CD1005-T12C E12
CD1005-T24C E24

Rating & Characteristic Curves

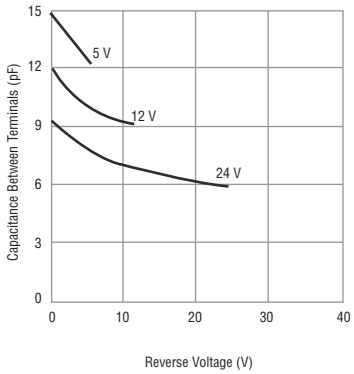
Peak Pulse Power vs. Pulse Time



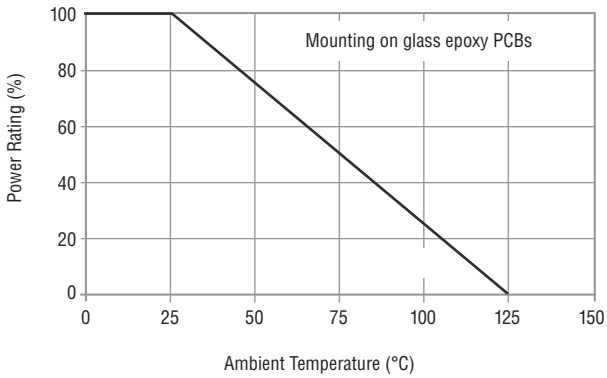
Pulse Waveform



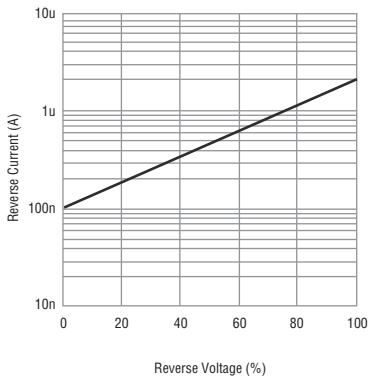
Capacitance Between Terminals



Power Derating Curve

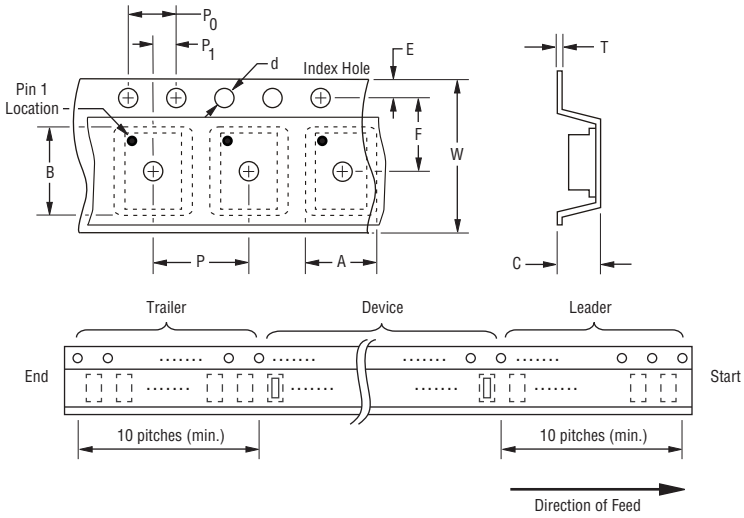


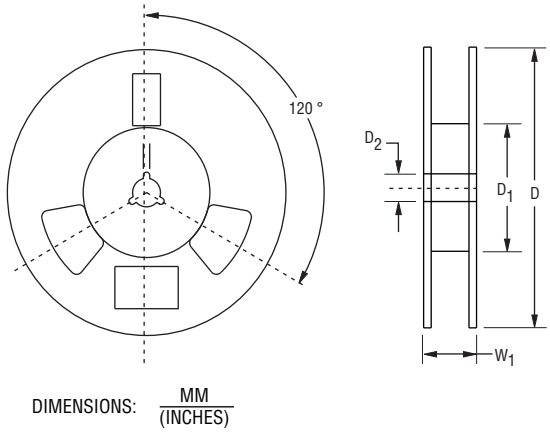
Reverse Characteristics



Packaging Information

The product is dispensed in tape and reel format (see diagram below).





DIMENSIONS: MM / (INCHES)

Devices are packed in accordance with EIA standard RS-481-A and specifications shown here.

Item	Symbol	0603	1005
Carrier Width	A	1.00 ± 0.10 (0.039 ± 0.004)	1.55 ± 0.10 (0.061 ± 0.004)
Carrier Length	B	1.85 ± 0.10 (0.073 ± 0.004)	2.65 ± 0.10 (0.104 ± 0.004)
Carrier Depth	C	1.00 ± 0.10 (0.039 ± 0.004)	1.05 ± 0.10 0.041 ± 0.004)
Sprocket Hole	d	1.55 ± 0.05 (0.061 ± 0.002)	1.55 ± 0.10 (0.061 ± 0.004)
Reel Outside Diameter	D	178 (7.008)	178 (7.008)
Reel Inner Diameter	D_1	60.0 (2.362) MIN.	60.0 (2.362) MIN.
Feed Hole Diameter	D_2	13.0 ± 0.20 (0.512 ± 0.008)	13.0 ± 0.20 (0.512 ± 0.008)
Sprocket Hole Position	E	1.75 ± 0.10 (0.069 ± 0.004)	1.75 ± 0.10 (0.069 ± 0.004)
Punch Hole Position	F	3.50 ± 0.05 (0.138 ± 0.002)	3.50 ± 0.05 (0.138 ± 0.002)
Punch Hole Pitch	P	4.00 ± 0.10 (0.157 ± 0.004)	4.00 ± 0.10 (0.157 ± 0.004)
Sprocket Hole Pitch	P_0	4.00 ± 0.10 (0.157 ± 0.004)	4.00 ± 0.10 (0.157 ± 0.004)
Embossment Center	P_1	2.00 ± 0.05 (0.079 ± 0.002)	2.00 ± 0.05 (0.079 ± 0.002)
Overall Tape Thickness	T	0.20 ± 0.10 (0.008 ± 0.004)	0.20 ± 0.10 (0.008 ± 0.004)
Tape Width	W	8.00 ± 0.20 (0.315 ± 0.008)	8.00 ± 0.20 (0.315 ± 0.008)
Reel Width	W_1	13.5 (0.531) MAX.	13.5 (0.531) MAX.
Quantity per Reel	--	4,000	4,000